IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A data processing method for determining record data allocation on an information recording medium having a plurality of recording layers, the method ~~characterized by having~~ comprising:

an allowable jump range determining step of determining, in the decoding unit, an allowable range of an intra-layer jump and an inter-layer jump performed in a playback processing of said information recording medium, the allowable range of the inter-layer jump being no more than 40,000 sectors;

a required jump time calculating step of calculating, in the decoding unit, a required time for the intra-layer jump and the inter-layer jump on the basis of allowable jump range information determined in said allowable jump range determining step; and

a consecutive data allocation size determining step of determining, in the decoding unit, an allowable minimum consecutive data size of data to be stored in the information recording medium on the basis of the required jump time calculated in said required jump time calculating step.

Claim 2 (Currently Amended): The data processing method as claimed in Claim 1, ~~characterized in that~~ wherein:

said required jump time calculation step is a step of calculating:

as to an intra-layer jump, a sum of a seek time of a pickup and an overhead time involved in a processing for a read data unit block of the information recording medium, and

as to an inter-layer jump, a sum of the seek time of the pickup, a pickup

adjustment time involved in an inter-layer seek, and an overhead time involved in a

processing for a read data unit block of said information recording medium.

Claim 3 (Currently Amended): The data processing method as claimed in Claim 1,

~~characterized in that~~ wherein:

said consecutive data allocation size determining step is a step including an allowable

minimum playback time determining step of determining an allowable minimum playback

time as a playback time corresponding to the allowable minimum consecutive data size of the

data to be stored in the information recording medium, and determining the allowable

minimum consecutive data size of the data to be stored in the information recording medium

on the basis of said allowable minimum playback time.

Claim 4 (Currently Amended): The data processing method as claimed in Claim 3,

~~characterized in that~~ wherein:

said allowable minimum playback time determining step is a step of calculating the

allowable minimum playback time [t] on the basis of a jump time [TJUMP], a data read out

rate [Rud] from a disc in a drive and a data recording rate [RTS] in accordance with the

following equation:

$t = TJUMP \times Rud/(Rud-RTS)$; and

said consecutive data allocation size determining step is a step of determining the

allowable minimum consecutive data size of the data to be stored in the information

recording medium on the basis of the allowable minimum playback time [t] calculated by

said equation in accordance with the following equation:

$Usize = t \times RTS$.

Claim 5 (Currently Amended): The data processing method as claimed in Claim 1, ~~characterized by~~ further ~~having~~ comprising:

a data setting processing step of identifying jump origin data and jump destination data that can be generated in the playback processing of the stored data in the information recording medium and setting a distance between the jump origin data and the jump destination data within the allowable jump range determined in said allowable jump range determining step ~~on the basis of the identification information~~.

Claim 6 (Currently Amended): The data processing method as claimed in Claim 5, ~~characterized in that~~ wherein:

said data setting processing step carries out a processing of setting the distance between the jump origin data and the jump destination data within said allowable jump range by an interleave processing of clip data set as a data unit of storage target data on the information recording medium.

Claim 7 (Currently Amended): The data processing method as claimed in Claim 1, ~~characterized by~~ further ~~having~~ comprising:

a data recording step of performing data recording on the information recording medium in a data unit larger than or equal to the consecutive data allocation size determined in said consecutive data allocation size determining step.

Claim 8 (Currently Amended): A data processing apparatus for determining record data allocation on an information recording medium having a plurality of recording layers, said apparatus ~~characterized by having~~ comprising:

allowable jump range determining means that determines an allowable range of an

intra-layer jump and an inter-layer jump performed in a playback processing of said

information recording medium, the allowable range of the inter-layer jump being no more

than 40,000 sectors;

required jump time calculating means that calculates a required time for the intra-

layer jump and the inter-layer jump on the basis of allowable jump range information

determined by said allowable jump range determining means; and

consecutive data allocation size determining means that determines an allowable

minimum consecutive data size of data to be stored in the information recording medium on

the basis of the required jump time calculated by said required jump time calculating means.

Claim 9 (Currently Amended): The data processing apparatus as claimed in Claim 8,

~~characterized in that~~ wherein:

said required jump time calculating means calculates:

as to an intra-layer jump, a sum of a seek time of a pickup and an overhead

time involved in a processing for a read out data unit block of the information

recording medium, and

as to an inter-layer jump, a sum of the seek time of the pickup, a pickup

adjustment time involved in an inter-layer seek, and an overhead time involved in a

processing for a read out data unit block of said information recording medium.

Claim 10 (Currently Amended): The data processing apparatus as claimed in Claim

8, ~~characterized in that~~ wherein:

said data processing apparatus further includes allowable minimum playback time

determining means that determines an allowable minimum playback time as a playback time

corresponding to the allowable minimum consecutive data size of the data to be stored in the information recording medium, and

said consecutive data allocation size determining means is configured to determine the allowable minimum consecutive data size of the data to be stored in the information recording medium on the basis of said allowable minimum playback time.

Claim 11 (Currently Amended): The data processing apparatus as claimed in Claim 10, ~~characterized in that~~ wherein:

said allowable minimum playback time determining means is configured to calculate the allowable minimum playback time [t] on the basis of a jump time [TJUMP], a data read out rate [Rud] from a disc in a drive and a data recording rate [RTS] in accordance with the following equation:

$$t = TJUMP \times Rud/(Rud\text{-}RTS); \text{ and}$$

said consecutive data allocation size determining means is configured to determine the allowable minimum consecutive data size of the data to be stored in the information recording medium on the basis of the allowable minimum playback time [t] calculated by said equation in accordance with the following equation:

$$Usize = t \times RTS.$$

Claim 12 (Currently Amended): The data processing apparatus as claimed in Claim 8, ~~characterized in that~~ wherein:

said data processing apparatus further has data setting processing means that identifies jump origin data and jump destination data that can be generated in the playback processing of the stored data in the information recording medium and sets a distance between the jump

origin data and the jump destination data within the allowable jump range determined in the

said allowable jump range determining means ~~on the basis of the identification information~~.

Claim 13 (Currently Amended): The data processing apparatus as claimed in Claim

12, ~~characterized in that~~ wherein:

said data setting processing means is configured to carry out a processing of setting

the distance between the jump origin data and the jump destination data within said allowable

jump range by an interleave processing of clip data set as a data unit of storage target data on

the information recording medium.

Claim 14 (Currently Amended): The data processing apparatus as claimed in Claim

8, ~~characterized in that~~ wherein:

said data processing apparatus further has data recording means that performs data

recording on the information recording medium in a data unit larger than or equal to the

consecutive data allocation size determined in said consecutive data allocation size

determining step.

Claim 15 (Currently Amended): An information recording medium having a plurality

of recording layers, ~~characterized by having~~ comprising:

a configuration storing therein data larger than or equal to an allowable minimum

consecutive data size determined on the basis of a required jump time of an intra-layer jump

and an inter-layer jump executed in a playback processing of the information recording

medium, the allowable range of the inter-layer jump being no more than 40,000 sectors.

Claim 16 (Currently Amended): The information recording medium as claimed in Claim 15, ~~characterized in that~~ wherein:

said required jump time is:

as to an intra-layer jump, a sum of a seek time of a pickup and an overhead time involved in a processing for a read out data unit block of the information recording medium, and

as to an inter-layer jump, a sum of the seek time of the pickup, a pickup adjustment time involved in an inter-layer seek, and an overhead time involved in a processing for a read out data unit block of said information recording medium.

Claim 17 (Currently Amended): The information recording medium as claimed in Claim 15, ~~characterized in that~~ wherein:

said allowable minimum consecutive data is a size determined on the basis of an allowable minimum playback time as a playback time corresponding the allowable minimum consecutive data size of the data to be stored in the information recording medium.

Claim 18 (Currently Amended): The information recording medium as claimed in Claim 15, ~~characterized in that~~ wherein:

said information recording medium further has data allocation of setting a distance between jump origin data and jump destination data in a jump processing that can be generated in a playback processing of the stored data of the information recording medium within an allowable jump range.

Claim 19 (Currently Amended): The information recording medium as claimed in

Claim 18, ~~characterized in that~~ wherein:

said information recording medium further has data allocation in which the distance

between the jump origin data and the jump destination data is set within said allowable jump

range by an interleave processing of clip data set as a data unit of storage target data on the

information recording medium.

Claim 20 (Currently Amended): A computer ~~program~~ readable medium including

computer executable instructions for executing a data processing for determining record data

allocation on an information recording medium having a plurality of recording layers, said

computer ~~program characterized by having~~ executable instructions causing a computer to

execute:

an allowable jump range determining step of determining an allowable range of an

intra-layer jump and an inter-layer jump performed in a playback processing of said

information recording medium, the allowable range of the inter-layer jump being no more

than 40,000 sectors;

a required jump time calculating step of calculating a required time for the intra-layer

jump and the inter-layer jump on the basis of allowable jump range information determined

in said allowable jump range determining step; and

a consecutive data allocation size determining step of determining an allowable

minimum consecutive data size of data to be stored in the information recording medium on

the basis of the required jump time calculated in said required jump time calculating step.

Claim 21 (Currently Amended): A data processing method for determining record

data allocation on an information recording medium, said method ~~characterized by having~~

comprising:

a data size determining step of determining, in the decoding unit, a data size as a

minimum size of data to be stored in the information recording medium on the basis of

allowable jump range information determined as an allowable range of [[a]] at least an inter-

layer jump processing in a playback processing of said information recording medium, the

allowable range of the inter-layer jump being no more than 40,000 sectors; and

a data allocation determining step of determining, in the decoding unit, a data

recording configuration in which a data block having said data size is so allocated as to be

playable in the jump processing within said allowable jump range.

Claim 22 (Currently Amended): The data processing method as claimed in Claim 21,

~~characterized in that~~ wherein:

said data size determining step is a step of determining a data size as a minimum size

of data to be stored in the information recording medium on the basis of the allowable jump

range information of an intra-layer jump and an inter-layer jump.

Claim 23 (Currently Amended): The data processing method as claimed in Claim 21,

~~characterized in that~~ wherein:

said data size determining step is a step of determining a data size on the basis of a

table in which a data recording rate [RTS] is made corresponding to the allowable minimum

data size of the data to be stored in the information recording medium.

Claim 24 (Currently Amended): The data processing method as claimed in Claim 21, ~~characterized in that~~ wherein:

said data size determining step is a step of determining a data size on the basis of a relational expression between a data recording rate [RTS] and the allowable minimum data size of the data to be stored in the information recording medium.

Claim 25 (Currently Amended): The data processing method as claimed in Claim 24, ~~characterized in that~~ wherein:

said relational expression is an expression shown by the following equation:

$$S_{EXTENT}[byte] \geq \frac{T_{JUMP}[ms] \times R_{UD}[bps]}{1000 \times 8} \times \frac{TS\_recording\_rate[bps] \times 192}{R_{UD}[bps] \times 188 - TS\_recording\_rate[bps] \times 192},$$

setting that an allowable minimum data size of the data to be stored in the information recording medium is S_{EXTENT}, a total jump time is T_{JUMP}, a data read out rate from a disc in a drive is R_{ud}, and a data recording rate [RTS] is $TS_{recording\ rate}$.

Claim 26 (Currently Amended): A data processing apparatus for determining record data allocation on an information recording medium, said apparatus ~~characterized by having~~ comprising:

a data size determining apparatus that determines a data size as a minimum size of data to be stored in the information recording medium on the basis of allowable jump range information determined as an allowable range of [[a]] at least an inter-layer jump processing in a playback processing of said information recording medium, the allowable range of the inter-layer jump being no more than 40,000 sectors; and

a data allocation determining apparatus that determines a data recording structure in

which a data block having said data size is so allocated as to be playable in the jump

processing within said allowable jump range.

Claim 27 (Currently Amended): The data processing apparatus as claimed in Claim

26, ~~characterized in that~~ <u>wherein</u>:

said data size determining means is configured to determine a data size as a minimum

size of data to be stored in the information recording medium on the basis of the allowable

jump range information of an intra-layer jump and an inter-layer jump.

Claim 28 (Currently Amended): The data processing apparatus as claimed in Claim

26, ~~characterized in that~~ <u>wherein</u>:

said data size determining apparatus is configured to determine a data size on the

basis of a table in which a data recording rate [RTS] is made corresponding to the allowable

minimum data size of the data to be stored in the information recording medium.

Claim 29 (Currently Amended): The data processing apparatus as claimed in Claim

26, ~~characterized in that~~ <u>wherein</u>:

said data size determining apparatus is configured to determine a data size on the

basis of a relational expression between a data recording rate [RTS] and the allowable

minimum data size of the data to be stored in the information recording medium.

Claim 30 (Currently Amended): The data processing apparatus as claimed in Claim

29, ~~characterized in that~~ <u>wherein</u>:

said relational expression is an expression shown by the following equation:

$$S_{EXTENT}[byte] \geq \frac{T_{JUMP}[ms] \times R_{UD}[bps]}{1000 \times 8} \times \frac{TS\_recording\_rate[bps] \times 192}{R_{UD}[bps] \times 188 - TS\_recording\_rate[bps] \times 192},$$

setting that an allowable minimum data size of the data to be stored in the information

recording medium is S_{EXTENT}, a total jump time is T_{JUMP}, a data read out rate from a disc in a

drive is R_{ud}, and a data recording rate [RTS] is $TS_{recording\ rate}$.

Claim 31 (Currently Amended): A computer ~~program~~ readable medium including

computer executable instructions for executing a record data allocation determining

processing on an information recording medium, said computer ~~program characterized by~~

~~having~~ executable instructions causing a computer to execute:

a data size determining step of determining a data size as a minimum size of data to

be stored in the information recording medium on the basis of allowable jump range

information determined as an allowable range of [[a]] at least an inter-layer jump processing

in a playback processing of said information recording medium, the allowable range of the

inter-layer jump being no more than 40,000 sectors; and

a data allocation determining step of determining a data recording structure in which a

data block having said data size is so allocated as to be playable in the jump processing

within said allowable jump range.

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